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EXAMINER

GAGLIARDI, ALBERT J

ART UNIT PAPER NUMBER

2878

DATE MAILED: 08/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/935,011		<b>Applicant(s)</b> WEBBER, MICHAEL EVAN	
	<b>Examiner</b> Albert J. Gagliardi		<b>Art Unit</b> 2878	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 18 June 2003.

2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-41 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-41 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 21 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All   b) ☐ Some \* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.

4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Comment on Submissions*

1. The response filed 18 June 2003 has been entered as Amendment A.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7, 16-18, 22-28 and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou (US 6,148,658) in view of Fujita *et al.* (US 6,043,504).

Regarding claim 1, *Chou* discloses an optical analysis system for analyzing a molecular component comprising: a laser (12) emitting light in the near infrared spectrum and an optical analysis means (14) optically coupled to the light source.

*Chou* does not specifically disclose the use of a light amplifier.

Regarding the use of a light amplifier, it is noted while *Chou* does not disclose the use of a light amplifier, it is well known in the art to utilize light amplifiers to increase the optical output of lasers and other sources. *Fujita*, for example, teaches that optical fiber amplifiers can increase the light output of near infrared lasers as much as 30 dB (col. 6, lines 57-63). Those skilled in the art appreciate that use of a light amplifier allows for the use of a lower power laser which are often more readily available. Therefore, absent some degree of criticality, it would have been a matter of routine design choice within the skill of a person of ordinary skill in the art to modify the system disclosed by *Chou* to further include an optical fiber amplifier optically

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coupled to the light source and the optical analysis means so as to allow for increased light output with a lower power laser.

Regarding claim 2, *Chou* discloses light having wavelengths between 700 nm and 3000 nm (abstract).


Regarding claims 3-4, in the apparatus suggested by *Chou* in view *Fujita* as applied above, *Chou* suggests that the optical coupling is done by optical fibers (16).

Regarding claims 5-6, in the apparatus suggested by *Chou* in view *Fujita* as applied above, *Fujita* suggests that the light amplifier is a fiber amplifier. Absent some degree of criticality, the use of a semiconductor optical amplifier would have been a functionally equivalent alternative design choice depending on the needs of the particular application.

Regarding claim 7, although *Chou* does not specifically describe the analysis means as a photoacoustic spectrometer, *Chou* does disclose that the analysis means includes at least a photoacoustic cell (14). Such cells are well known as being compatible with photoacoustic spectrometer systems. As such, one skilled in the art would have considered the use of an analysis means as comprising a photoacoustic spectrometer as being an obvious, if not inherent aspect of the system.

Regarding claims 16-18, the apparatus as claimed according to claims 16-18 is suggested by the apparatus suggested by *Chou* and *Fujita* as applied to claims 1-2, 5 and 7 above, and is rejected accordingly.

Regarding claims 22-28, the method as claimed according to claims 22-28 is suggested by the apparatus suggested by *Chou* and *Fujita* as applied to claims 1-7 above, and is rejected accordingly.



Regarding claims 36-38, the method as claimed according to claims 36-38 is suggested by the apparatus suggested by *Chou* and *Fujita* as applied to claims 16-18 above and is rejected accordingly.

4. Claims 8-15 and 29-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chou* and *Fujita* as applied above, and further in view of *Mackenzie et al.* (US 6,403,944 B1).

Regarding claims 8-15, the apparatus suggested by *Chou* and *Fujita* as applied to claims 1-7 above suggests the apparatus as claimed except that *Chou* and *Fujita* do not suggest the use of a plurality of lasers and a multiplexer.

Regarding the plurality of lasers and the multiplexer, *Mackenzie* discloses that it is well known and considered a functionally equivalent alternative design choice to substitute a plurality of lasers and a multiplexer for a tunable laser (col. 4, lines 33-40; col. 9, lines 10-35). Therefore, absent some degree of criticality, the substitution of a plurality of lasers and a multiplexer for the tunable laser suggested by *Chou* and *Fujita* would have been an obvious design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claims 29-35, the method as claimed according to claims 29-35 is suggested by the apparatus suggested by *Chou*, *Fujita* and *Mackenzie* as applied to claims 8-15 above and is rejected accordingly.

5. Claims 19-21 and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chou* and *Fujita* as applied above, and further in view of *Nathel et al.* (US 6,015,969).

Regarding claims 19-21, the apparatus suggested by *Chou* and *Fujita* as applied to claims 1-2 and 7 above suggests the apparatus as claimed except that *Chou* and *Fujita* do not suggest the laser is a fiber laser.

Regarding the fiber laser *Nathel* discloses a variety of well-known and functionally equivalent lasers including fibers lasers (col. 5, lines 57-63; col. 6, lines 37-41). Therefore, absent some degree of criticality, the substitution of a fiber laser for the laser suggested by *Chou* and *Fujita* would have been an obvious design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claims 39-41, the method as claimed according to claims 39-41 is suggested by the apparatus suggested by *Chou*, *Fujita* and *Nathel* as applied to claims 19-21 above and is rejected accordingly.

***Response to Arguments***

6. Applicant's arguments filed 18 June 2003 have been fully considered but they are not persuasive.

7. Regarding applicant's argument that the combination that the combination of *Chow* and *Fujita* would be inoperative because the device disclosed by *Chow* is directed to near infrared analysis in the 1700-2500 nm range while the light amplifier disclosed by *Fujita* is directed to a near infrared amplifier in the 900-1500 nm range, the examiner notes that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the secondary reference is not cited for the use of a light amplifier in a specific range, but merely for the generic teaching that light amplifiers, particularly near infrared light amplifiers may be advantageously used to increase a light signal. The examiner further notes that event though the photoacoustic analysis system of

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*Chou* is specifically directed to analysis in the range of 1700-2500 nm, those skilled in the art appreciate that such photoacoustic analysis systems are not limited to use in such narrow range but are readily adaptable to use much broader ranges within the near infrared spectrum depending on the absorption feature of the specific target species being analyzed (see Pilgrim *et al.* -- US 6,552,792 B1 -- at col. 5, line 60 to col. 6, line 6, for the proposition that it is routine in the art to choose the operating wavelength of the system so as to coincide with an absorption feature of the of the target species). As such, regardless of the specific wavelengths to which the primary and secondary references are directed, the examiner considers that modification of either reference to utilize the wavelength range of the other would have been a matter of routine skill in the art depending on the needs of the particular application and the desired target species to be analyzed.

8. Regarding applicant's argument that the modification of *Chou* and *Fujita* in view of *MacKenzie* would not have been obvious because the arrangement is not a preferred arrangement, the examiner notes that it has been held that disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In *re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." In *re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) (The invention was directed to an epoxy impregnated fiber-reinforced printed circuit material. The applied prior art reference taught a printed circuit material similar to that of the claims but impregnated with polyester-imide resin instead of epoxy. The reference, however, disclosed that epoxy was known for this use, but that epoxy

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impregnated circuit boards have “relatively acceptable dimensional stability” and “some degree of flexibility,” but are inferior to circuit boards impregnated with polyester-imide resins. The court upheld the rejection concluding that applicant’s argument that the reference teaches away from using epoxy was insufficient to overcome the rejection since “Gurley asserted no discovery beyond what was known in the art.” 27 F.3d at 554, 31 USPQ2d at 1132.). See MPEP 2123.

9. Regarding applicant’s argument that it would not have been obvious to modify the prior art in view of *Nathel* because *Nathel* is directed to an apparatus operating in the range of 600-1400 nm, the examiner reiterates that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case the teaching of *Nathel* is only for the known functional equivalence of lasers and fiber lasers. The choice of the appropriate wavelength is viewed as a matter of routine skill in the art.

10. All of applicant’s argument having been addressed, the rejection is maintained.

#### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant’s disclosure.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO



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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (703) 305-0417. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Albert J. Gagliardi  
Examiner  
Art Unit 2878

AJG  
July 26, 2003